



BatchMan

BatchMan Backup System Manual

Setting up and using the BatchMan Backup

Product Info & Support

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1. Introduction

BatchMan® has an integrated backup system as of Release 4.2. The backup system has mainly these functions:

- Creating BatchMan data backups
- Automated, timely and current backup creation (synchronous mode)
- Operating an additional master system with synchronized BM dataset
- Monitoring the master system and alerts
- Failover or switchover operation

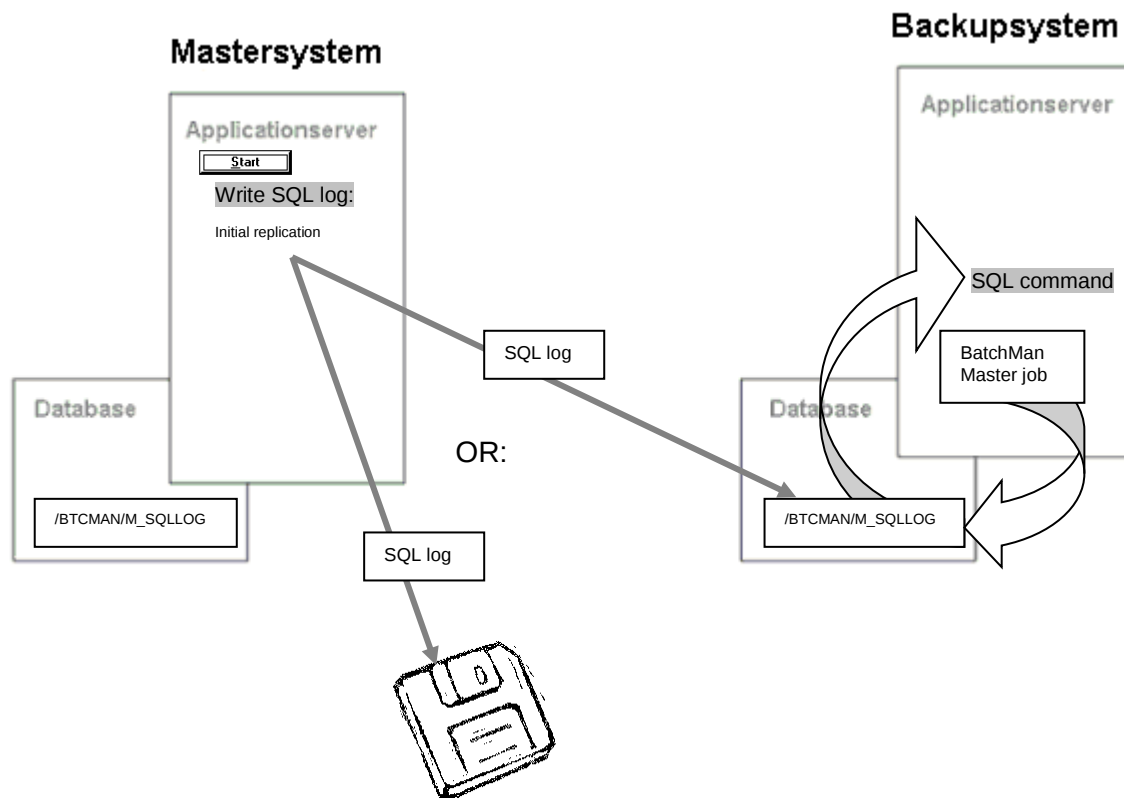
The backup system has the option of saving the high availability of the BatchMan master system (cf. 2 backup system (failsafe)). However, it is also possible to use the backup system for its classical purpose of just backing up data. In this case, it may be sufficient just to save the master data and repeating orders. (cf. Chapter 5 Backup system (master data replication)).

The backup is either saved in a special backup file or optionally transferred to a linked, second BatchMan master system (hereinafter referred to as the backup system).

The backup process has two stages. In the first step, an initial comparison is started, which replicates the current BatchMan dataset of the master system (cf. Chapter 2 Complete backup, Initial comparison). This replication occurs either in a file or in the connected backup system. The second stage remains active continually. In the process, only the data changes to the master system are taken into account as of the initial comparison. Thus, there is only a delta save in reference to the initial comparison (cf. Chapter 3 Backup system (failsafe) or Chapter 5 Backup system (master data replication)).

Please read all of this documentation completely before you start to set up the backup.

2. Complete backup, Initial comparison



For the initial comparison, the SQL log for the complete /BTCMAN* tables are sent to the backup system. On the backup system, all /BTCMAN/* tables are deleted and then the initial comparison is implemented so that in the end both databases have the same /BTCMAN/* table contents.

In the process, the following is saved:

- All master data
- All repeating orders
- All open orders
- The last 5 STDs from each plan
- All automatic orders from the last 2 days
- All individual orders from the last 2 days

If the “Only master data and WDH orders” flag is set, the system will only take that data into account.

The following is not saved:

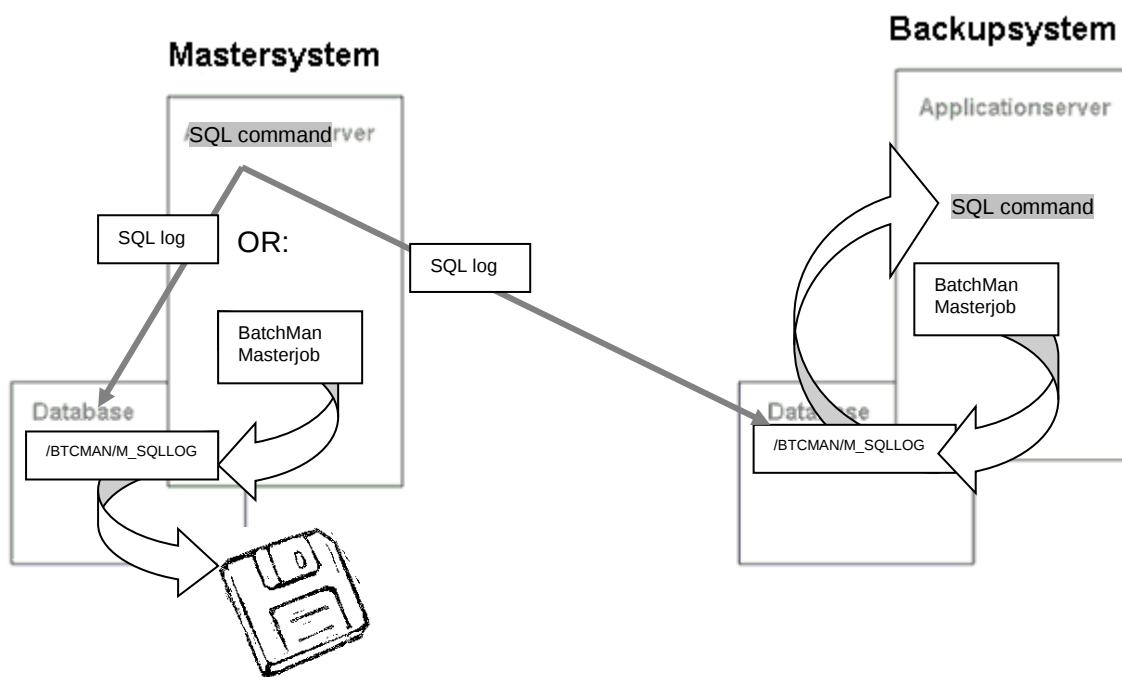
- Archive tables
- User jobs
- Setup settings
- Target system tables

To start the initial comparison, a backup partner system that is in the backup mode must be defined (except for “file mode”). The initial comparison waits until no more BatchMan lock entries are set and then locks the master system for the duration of the comparison. This ensures that no undetected data changes are made during the initial comparison.

The initial comparison starts automatically if a system is set to the backup master mode (cf. Chapter 6.3 Setup backup master). You also have the option of starting the initial comparison manually using report /BTCMAN/M_BK1. This is recommended for instance if the initial comparison exceeds the maximum dialog time (start /BTCMAN/M_BK1 in the batch mode).

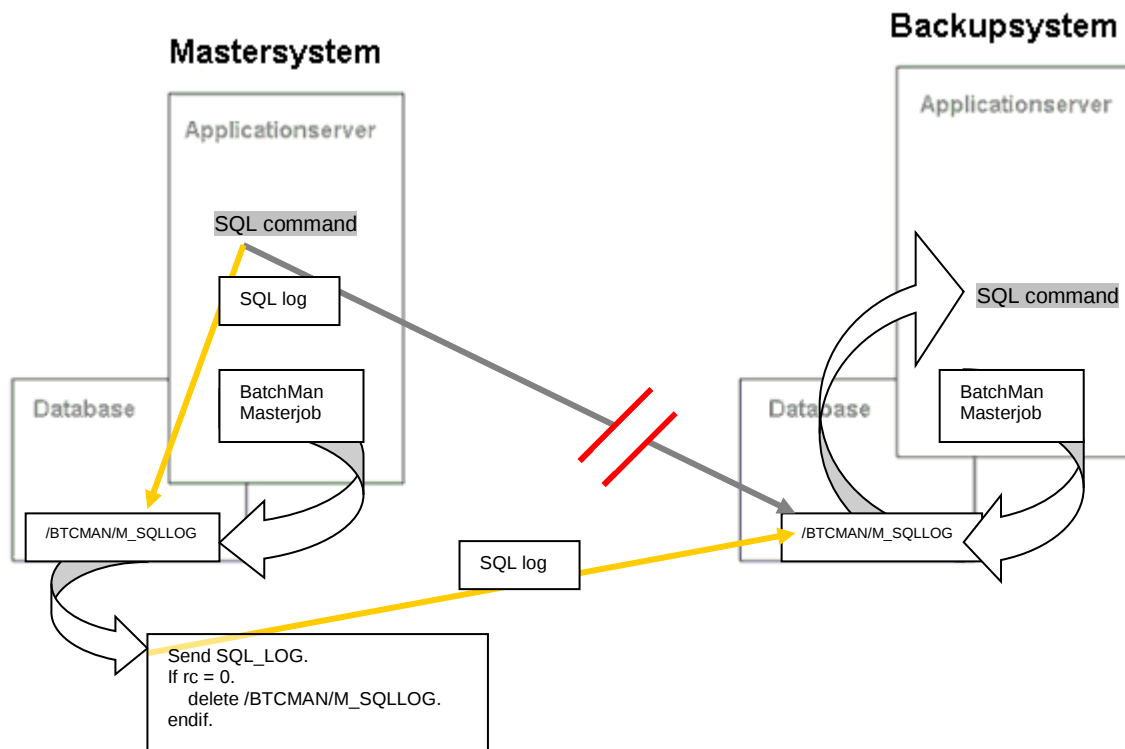
If you use the backup in the file mode, you should have /BTCMAN/M_BK1 run as a job periodically depending on the growth rate of the backup file (e.g. weekly). This report generates a new backup file with a new initial comparison. Bear in mind that BatchMan is automatically locked for the duration of the initial comparison (except for master data backup).

3. Backup system (failsafe)

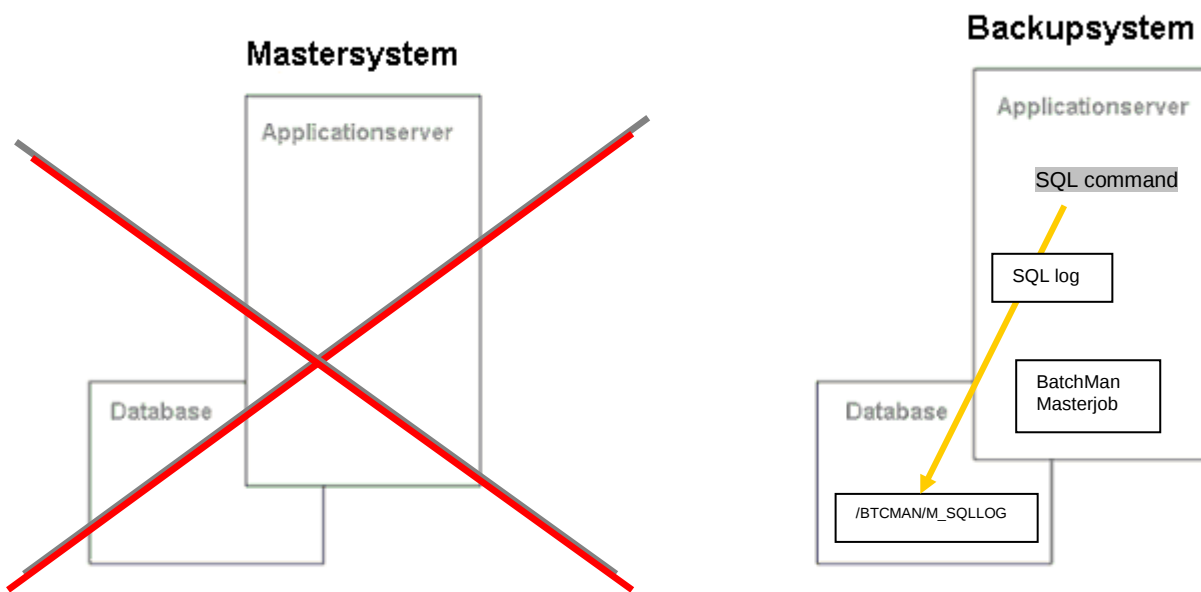


You can access this backup mode if the “Only master data and WDH orders” is **not** set in the setup. After each SQL command that changes the database, the system writes the respective SQL log with time stamp on the backup system in table /BTCMAN/M_SQLLOG. The master job of the backup system periodically reads using this table, generates from this the respective SQL commands, and executes them. If this is successful, the related log entry from table /BTCMAN/M_SQLLOG of the backup system is deleted. As an alternative, the SQL logs may also be written to a backup file (indirect backup).

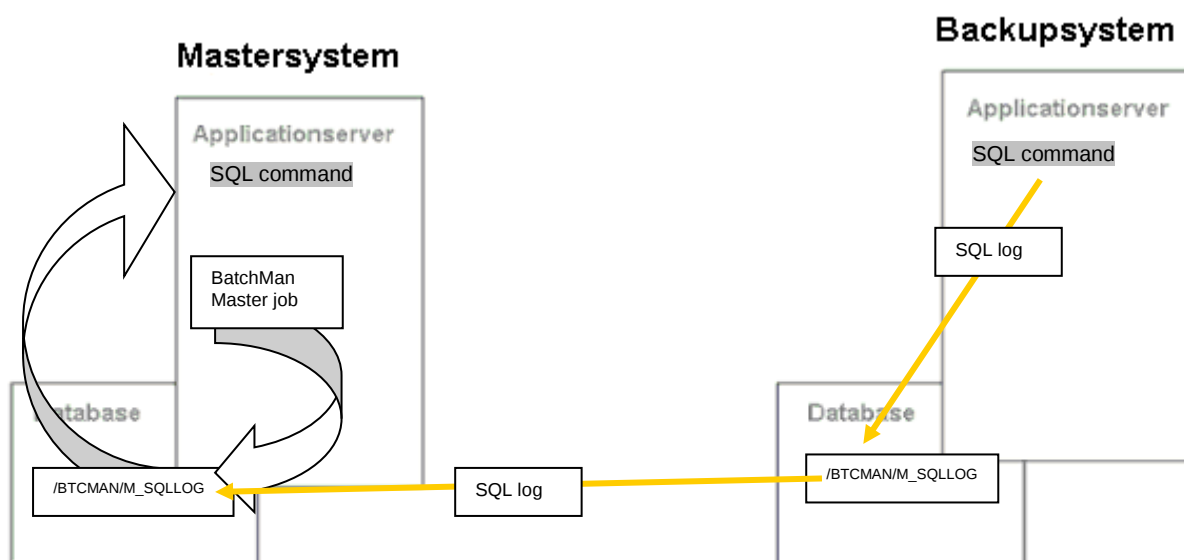
If the connection between the master and backup system is interrupted, the SQL logs are not sent directly to the backup system but saved to the master in table /BTCMAN/M_SQLLOG. The master job is read periodically using this table and tries to send the entries to the backup system. If this is successful, the related SQL log entries on the master table /BTCMAN/M_SQLLOG are deleted.



Failover or switchover operation



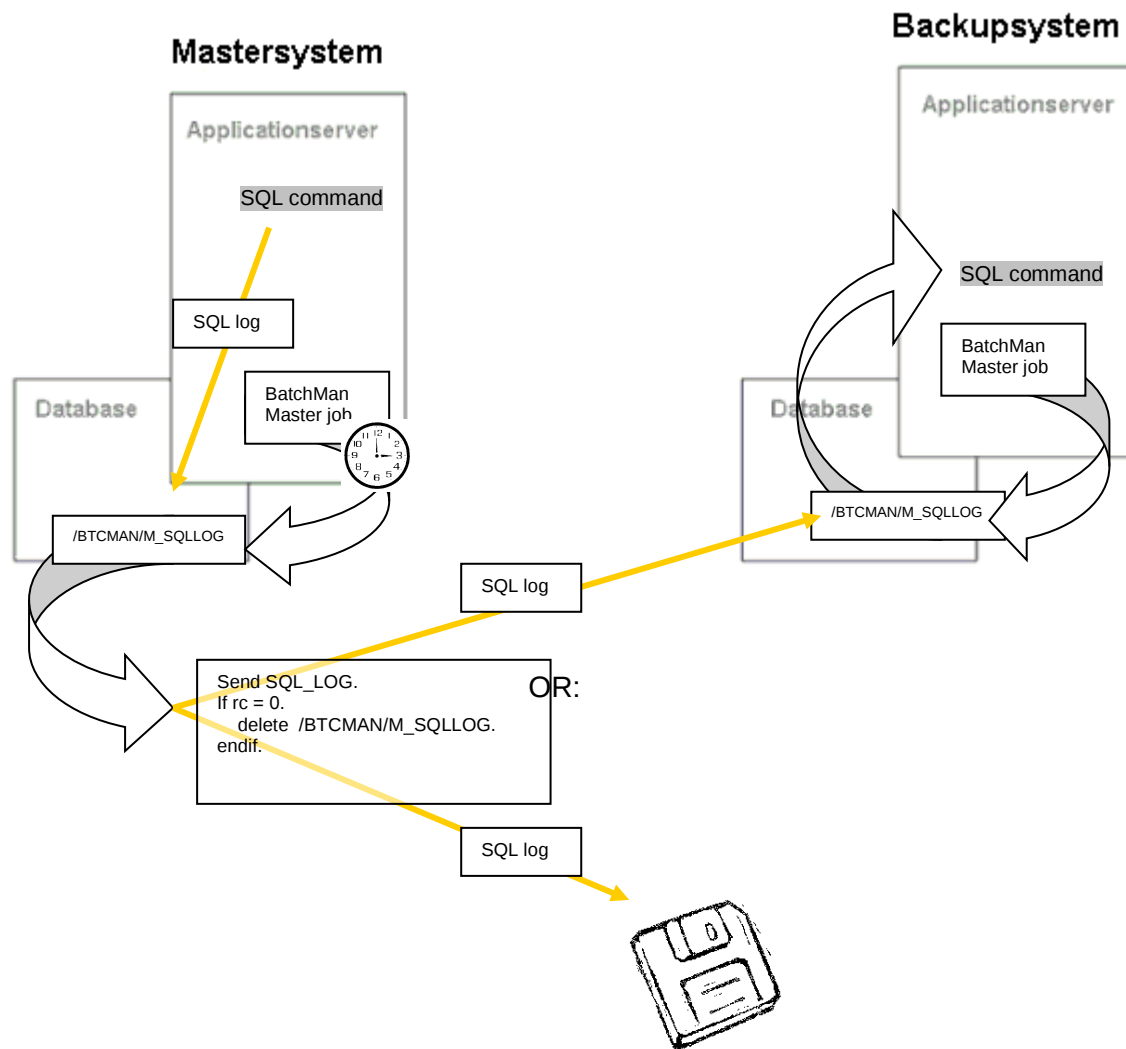
If the master system fails, the backup system can take over the master role. For this, the switch is made **manually** from the backup system to the master system. If you use the backup in the file mode, you must first implement the backup file on the backup system. Then the backup system takes over the master role. During this time, it saves all database changes to table /BTCMAN/M_SQLLOG.



When the original master system is available again, it locks itself automatically. For the manual start, synchronization occurs with the backup system in the master mode (backup system must be in the master mode). If this is successful, the master system again runs in the master mode and the

backup system is automatically switched to the backup mode. If you do not want a synchronization to occur, deactivate the backup for both systems.

5. Backup system (master data replication)



You can access this backup mode if the “Only master data and WDH orders” is **set** in the setup. Only master data and repeating orders are backed up.

After each SQL command that changes the master data and repeating data, the system writes the respective SQL log with time stamp on the master system in table **/BTCMAN/M_SQLLOG**. The master job of the master system reads this table at a defined time (synchronous, hourly, daily) and sends the entries either to the database of the backup system or writes it to a file. If this is successful, the related log entry from table **/BTCMAN/M_SQLLOG** of the master system is deleted.

6. Setup

To access the setup of the backup system, choose:

BatchMan *Function tree* → *Customizing* → *Basic customizing* → *Administration backup system*

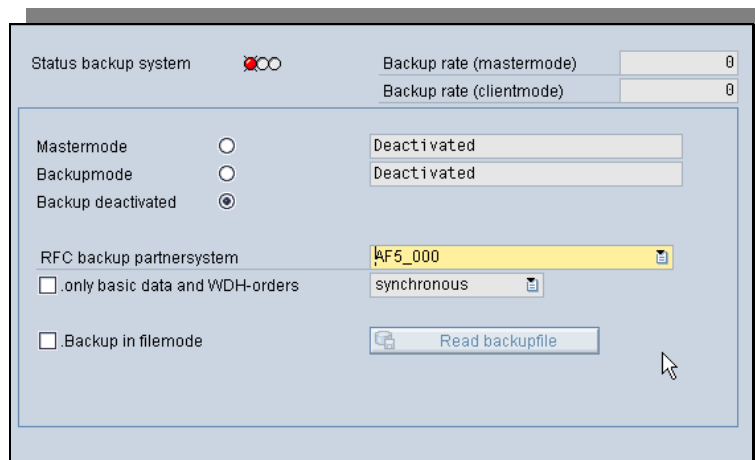


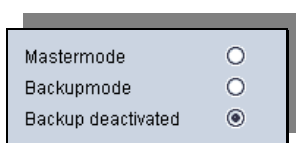
Figure 1: Setup backup system (J5H1_BUS)

The current status display is in the upper section. If the backup is activated, the LED should always be green. A red LED means the backup is deactivated; a yellow LED means that there are problems implementing logged backup records on the backup system. On the backup system, check the transactions (ST22 or SM21). You may have to carry out a new initial comparison.

On the right next to the status LED, you can see the number of the unprocessed backup records; these are always processed by the BatchMan master job depending on the backup mode. Here, backup records (master mode) are always logs of the related system (must be sent or saved to a file); backup records (backup mode) are the logs of the partner system (must be implemented).

Under the backup partner system RFC backup partnersystem AF5_000, you define the receiving backup system in the master mode or the sending master system in the backup mode. The partner system plays an important part for the failsafe function and is a mandatory setting (except in the file mode).

Bear in mind that after a system failure the BatchMan master system starts again normally if it previously did not define any valid backup system that is in the backup master mode (backup system has taken over the master role) during or after the system failure.



Under RFC backup partnersystem AF5_000, you can define the backup role of the respective system.

Here the following backup mode changes are possible:

Backup deactivated ⇔ Backup mode

➤ Always possible

Backup deactivated ⇔ Master mode

➤ If the partner system is in the backup mode (always causes initial comparison, maybe in the backup file)

Backup mode ⇔ Master mode

- The backup system takes over the master role if the partner system cannot be reached (failover) or it can be reached, but the partner system is also in the backup master mode and BatchMan is deactivated (switchover)
- Also the previous initial comparison must be available; perhaps first the implementation of the backup file

Backup mode ⇒ Backup deactivated

- Always possible; synchronization is switched off during this time, BatchMan is automatically deactivated

Master mode ⇒ Backup mode

- Only possible automatically by BatchMan system start

Master mode ⇒ Backup deactivated

- Always possible, synchronicity is lost

As a precaution, you can generally access in or from the master mode file mode only via the deactivated backup mode, afterwards an initial comparison is required.

Importing the backup file only works in the backup mode (with file mode).

6.1. Alerts for system failure

In the period of the master job, the backup system monitors whether or not the master system is available. If this is not the case, then an alert is triggered according to the setting.

Since the backup system does not have any own dataset, but uses the dataset of the respective master system assigned, the required alert tool and the alert team must create or maintain the master system.

How to define alert tools and alert teams is explained in detail in the documentation

BM_e_Alert_YY_MM.

Alert tools: Maintain

BM: Alerttools

Alert tools: BACKUP_ALERT

Description: SAPOffice mail

System type: SAP office mail

System dep. entries

Document type: RAW

SAP office title: BatchMan alerting, backupsystem &SID

Dontattach job log: ☐

Finished message:

Error message: Controlled mastersystem not available

Recocvery job message:

NoExec message:

Min. runtime:

Max. runtime:

Max. runtime (renewed):

Long text:

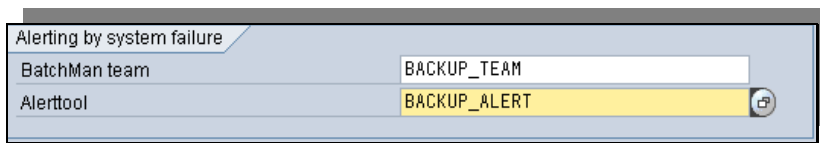
Created: MZWIERZ 13.03.2008 17:03:43

Last changed: MZWIERZ 14.03.2008 10:47:31

Figure 2: Alert tool configuration (J5H1_P08)

You can set the alert text for the backup alert in the alert tool under “Error message”.

After the initial comparison, the alert settings maintained are transferred with the master system onto the backup system and then used for the backup alerts there.



Bear in mind that the alert is only executed once. **The actual failure substitution (backup system takes over the master role) must always occur manually as a precaution.**

6.2. Setting up the backup system

6.2.1. Setup backup system

Start:

BatchMan®-Function tree → Customizing → Basic customizing → Administration backup system

Use the master system as the partner system and select the backup mode, then maintain the alert settings for system failure.

If BatchMan is in the backup mode, no more jobs are started and released. BatchMan master data may no longer be changed in this system manually (except for master data backup), since otherwise the synchronization for the backup master system would be lost.

Only take the following points 6.2.2-6.2.4 into account if you use the backup system for the failsafe function.

6.2.2. Remote Connections

The target systems on the backup system must be created and maintained as the target systems on the master system (Transaction J5H1_P05).

For instance, a job on the master system has target system HOT_000 and is transferred to the backup system. Upon failure of the master system, this job can only run on the backup system if backup system also knows target system HOT_000.

6.2.3. TVARV(C), checkpoints and resources

If within BatchMan TVARV(C) you use checkpoints or resources explicitly on the master system (e.g. via the target system within a separate job), you must ensure that these values are also updated after the backup system takes over.

Example:

In job J, report /BTCMAN/M_RE1 is running for setting the manual resources.

The resource is to be set on the BatchMan master system so the target system of this job is HOB_000.

Now master system HOB_000 breaks down and backup system AF5_000 takes control and thus also the master role.

The correct scenario would be for job J now to run on the new master system AF5_000, but HOB_000 is defined as the target system.

You have two options to solve this problem:

- ➔ *If the backup system takes over the master role upon system failure, you have to change the target system to the “new” master system for all jobs that update variables that you require*

on the master system. If the failure substitution has ended, you must reset these jobs back again to the actual master system.

This process is awkward and confusing and is recommended only in exceptional circumstances.

The better option:

→ On the master and backup system, define a new abstract target system (transaction J5H1_P05), e.g. with the name "Master", which targets (in Transaction SM59) "NONE" in fact.

Then give this target system to the jobs that in principle must run on the master system regardless of which real system has the master role at runtime.

For the logical destination in Transaction J5H1_P05, you can use the logical destination that already exists for your default master system.

Master system	Backup system
RFC Destination MASTER Remote logon Test connection RFC destination MASTER Technical settings Connection type 3 R/3 connection ☐ Trace Load distrib. ☐ Yes ☒ No Target host NONE System number Save as ☐ HostName ☒ IP address NONE Security Options Trusted system ☐ Yes ☒ No ☐ Activ ☒ Inactiv. Description BatchMan (NONE) Logon Language DE Client User ☐ Current user Password ***** is still blank ☐ Unencrypted password (2.0) Attributes Created by MZWIERZ 20.06.2008 Last changed by MZWIERZ 20.06.2008	RFC Destination MASTER Remote logon Test connection RFC destination MASTER Technical settings Connection type 3 R/3 connection ☐ Trace Load distrib. ☐ Yes ☒ No Target host NONE System number Save as ☐ HostName ☒ IP address NONE Security Options Trusted system ☐ Yes ☒ No ☐ Activ ☒ Inactiv. Description BatchMan (NONE) Logon Language DE Client User ☐ Current user Password ***** is still blank ☐ Unencrypted password (2.0) Attributes Created by MZWIERZ 20.06.2008 Last changed by MZWIERZ 20.06.2008

Figure 3: Transaction SM59 (on master system)

Figure 4: Transaction SM59 (on backup system)

Master system	Backup system
Remote destinations: Create BM Remote connections RFC Destination MASTER state Description BatchMan Mastersystem (NONE) ☒ Verbindung aktiv ☐ Defaultverbindung Nagelonen ☐ keine Anzeige im Monitoring ☐ keine Anzeige in Jobpflege 9 Priorität im Monitoring Log destination H0B_000_BM_SERV to call dialing functions Log destination H0B_000_BM_BATCH to schedule in back ground System and interface information Connection type 3 Local connection Hostname NONE IP address NONE Information remote Installation no. 0020226179 SID H0B Client 000 OS Windows NT DB ORACLE Release 45C Basis SP 0045 Kernel 450 ADAP SP 0040 Time diff to UTC (S) 3600 Summer time Created 00:00:00 Changed 00:00:00	Remote destinations: Create BM Remote connections RFC Destination MASTER state Description BatchMan Mastersystem (NONE) ☒ Verbindung aktiv ☐ Defaultverbindung Nagelonen ☐ keine Anzeige im Monitoring ☐ keine Anzeige in Jobpflege 9 Priorität im Monitoring Log destination AFS_000_BM_SERV to call dialing functions Log destination AFS_000_BM_BATCH to schedule in back ground System and interface information Connection type 3 Local connection Hostname NONE IP address NONE Information remote Installation no. INITIAL SID AFS Client 000 OS Windows NT DB ORACLE Release 620 Basis SP 0033 Kernel 020 ADAP SP 0000 Time diff to UTC (S) 3600 Summer time Created 00:00:00 Changed 00:00:00

Figure 5: Transaction J5H1_P05 (on master system)

Figure 6: Transaction J5H1_P05 (on backup system)

If you use TVAR(C) variables from your master system, you will have another difficulty. Since table TVARV(C) is a standard SAP table, any value changes to this table will be ignored for the backup. Thus when you switch the master system, you must ensure that the “new” master system can access the same current TVARV(C) values as the “old” master system. You can best do this while setting TVARV(C) values (e.g. using report /BTCMAN/M_RV1) by making sure that the values are also updated on the respective backup system in addition to the master system.

6.2.4. Other notes

The backup generally records only BatchMan tables; for smooth emergency operation on the backup system, you have to adjust to the master system those BatchMan external settings that are used in BatchMan.

These include:

- Parent child function
- Deactivation of job interception
- BatchMan external configuration of alerts
- Maintenance of SAP calendar
- Authorizations BatchUser
- Events
- SM59 maintenance

6.3. Master system setup

6.3.1. Master system setup

Start:

BatchMan-Function tree → Customizing → Basic customizing → Administration backup system

If you use the backup system as the partner system, then it must already be in backup mode. If you want to use the file mode, select it and enter a directory. The file name is generated automatically. If you activate the backup master mode, the initial comparison starts.

Bear in mind that in the file mode the initial comparison is to be repeated regularly (cf. Chapter 2 Complete backup, Initial comparison).

After the initial comparison, the backup master mode is active.

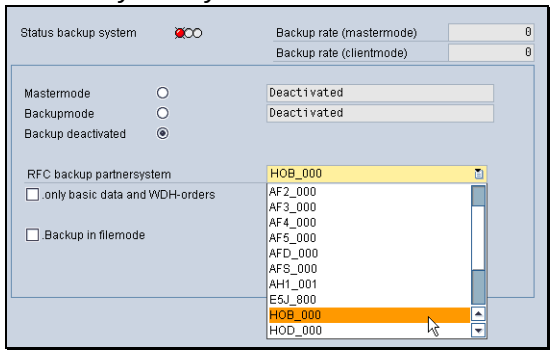
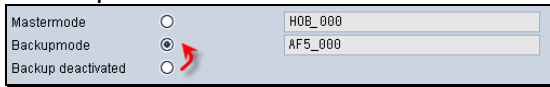
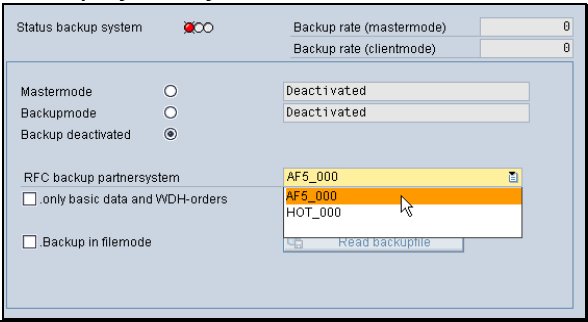
If a system start for a backup master system is detected and if the partner system is also in the backup master mode -> BatchMan locks automatically.

For a manual start, you can then choose synchronization with the backup system (retrieve master role) or backup deactivation (**caution: all changes will be lost during system failure**).

7. Scenario: Setting up a direct backup (complete)

Procedure

Pay attention to the numbering

	Master system (e.g. HOB_000)	Backup system (e.g. AF5_000)
1.	Check whether manual preparation is required regarding points 6.2.2.-6.2.4.	Check whether manual preparation is required regarding points 6.2.2.-6.2.4.
2.		Start Transaction J5H1_BUS. Under backup partner system, choose the master system you want. 
3.		Switch from "Backup deactivated" to "Backup mode"  and then choose "Save". 
4.	Maintain the alert tool and alert team for the backup alert. You have to do this on the master system since the backup system uses the dataset of the master system (cf. point 6.1).	
5.	Start Transaction J5H1_BUS. Under backup partner system, choose the backup system you want. 	
6.	Switch from "Backup deactivated" to "Master mode". The initial comparison automatically starts. During the initial comparison, BatchMan is locked automatically.	

If the initial comparison is successful, the LED under "Status backup system" is green.

7.

After the initial comparison, the backup system knows the alert tools and alert teams of the master system. You can now activate the backup alert. If you want to test the alert first on the backup system, start transaction J5H1_ALA.

8.

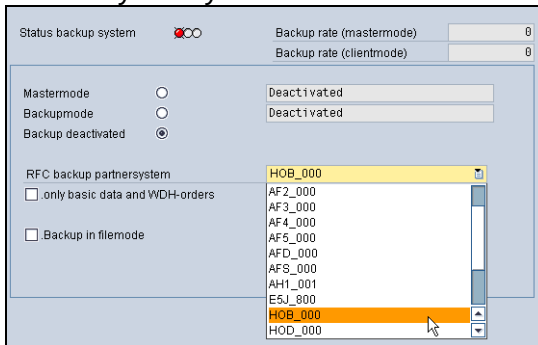
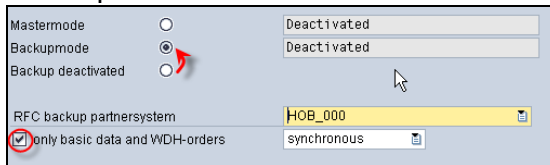
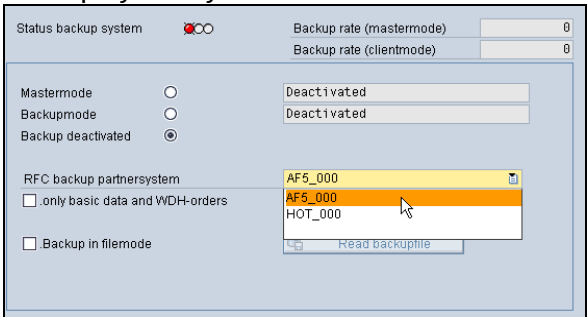
Start Transaction J5H1_BUS and enter the alert settings you want.

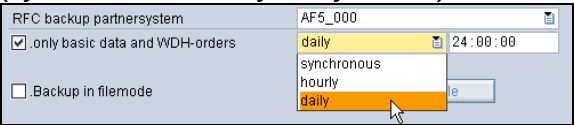
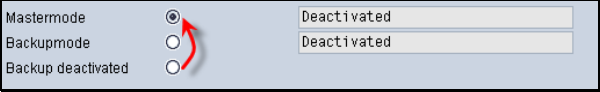
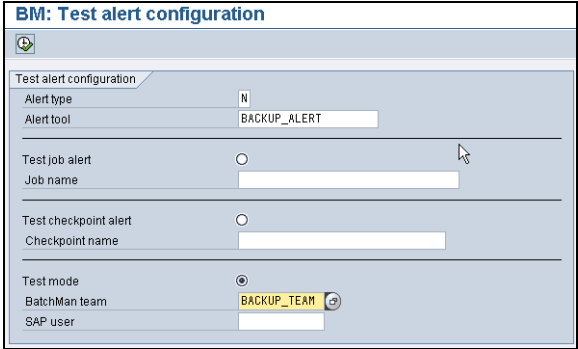
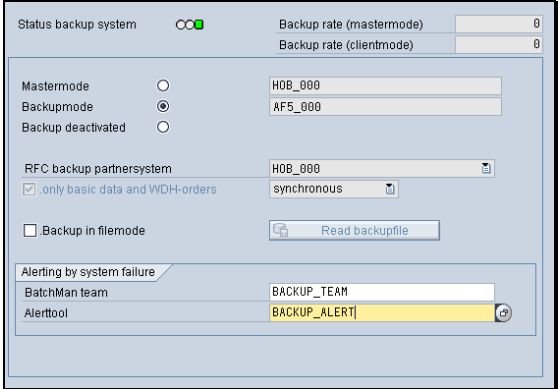
If you do not want any alerts, leave the fields empty.

8. Scenario: Setting up a direct backup (only master data)

Procedure

Pay attention to the numbering

	Master system (e.g. HOB_000)	Backup system (e.g. AF5_000)
1.	Check whether manual preparation is required regarding points 6.2.2.-6.2.4.	Check whether manual preparation is required regarding points 6.2.2.-6.2.4.
2.		Start Transaction J5H1_BUS. Under backup partner system, choose the master system you want. 
3.		Activate the “Only master data and WDH orders” checkbox Switch from “Backup deactivated” to “Backup mode”  and then choose “Save”. 
4.	Maintain the alert tool and alert team for the backup alert. You have to do this on the master system since the backup system uses the dataset of the master system (cf. point 6.1).	
5.	Start Transaction J5H1_BUS. Under backup partner system, choose the backup system you want. 	

6.	Activate the “Only master data and WDH orders” checkbox. Then define the synchronizing time period (synchronous, hourly, daily + time) 	
7.	Switch from “Backup deactivated” to “Master mode”. The initial comparison automatically starts. During the initial comparison, BatchMan is not locked (in contrast to the initial comparison for the complete backup).  If the initial comparison is successful, the LED under “Status backup system” is green.	
8.		After the initial comparison, the backup system knows the alert tools and alert teams of the master system. You can now activate the backup alert. If you want to test the alert first on the backup system, start transaction J5H1_ALA. 
9.		Start Transaction J5H1_BUS and enter the alert settings you want.  If you do not want any alerts, leave the fields empty.

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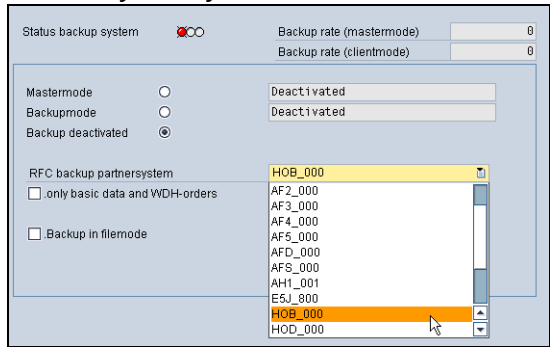
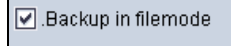
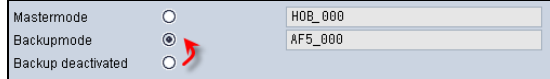
9. Scenario: Setting up an indirect backup (file mode)

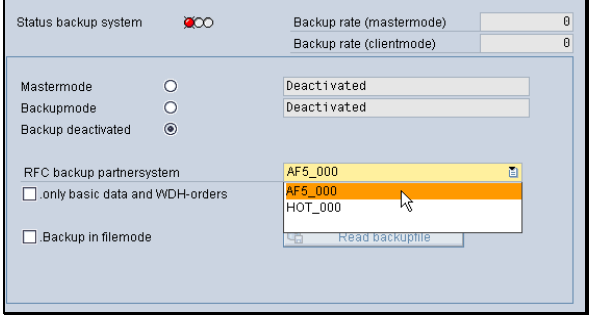
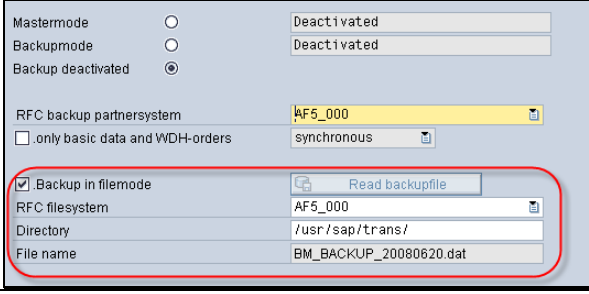
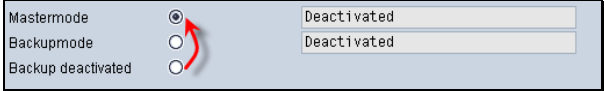
Procedure

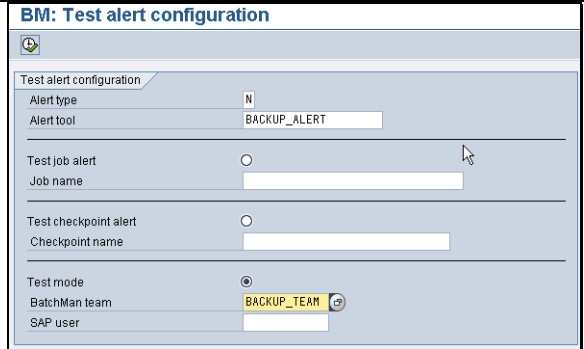
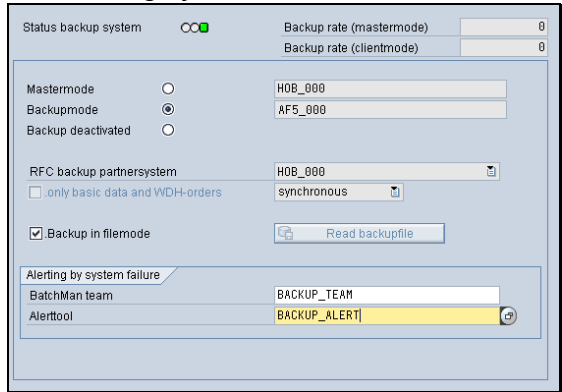
For this type of backup, you do not have to define a certain backup system since the backup records are saved in a file.

You can also define the backup system at the time you want to import a backup file. **Bear in mind** that for any failsafe by the later backup system points 6.2.2.-6.2.4. may still be significant and it may be too late to carry out those points.

Pay attention to the numbering

	Master system (e.g. HOB_000)	Backup system (e.g. AF5_000) [Optional]
1.	Check whether manual preparation is required regarding points 6.2.2.-6.2.4.	Check whether manual preparation is required regarding points 6.2.2.-6.2.4.
2.		Start Transaction J5H1_BUS. Under backup partner system, choose the master system you want. 
3.		Activate the "Backup in file mode" checkbox. 
4.		Switch from "Backup deactivated" to "Backup mode"  and then choose "Save". 
5.	Maintain the alert tool and alert team for the backup alert. You have to do this on the master system since the backup system uses the dataset of the master system (cf. point 6.1).	
6.	Start Transaction J5H1_BUS. Under backup partner system, choose the backup system you want. If you want to define the backup system later, leave the field empty.	

		
7.	Activate the “Backup in file mode” checkbox. Then under “RFC file system” define the system where the backup file is to be created. On this system, one BatchMan client transport at least must be imported. If you want to create the backup file on the same master system, leave the field empty. Define the directory where the backup file is to be created. The file name is assigned dynamically by BatchMan and cannot be changed. 	
8.	Switch from “Backup deactivated” to “Master mode”. The initial comparison automatically starts. During the initial comparison, BatchMan is locked automatically.  If the initial comparison is successful, the LED under “Status backup system” is green.	
9.		Alert tools and alert teams of the master system are only known after importing the backup file. To activate the backup alert, either import the backup file (using the “Import backup file” pushbutton) or transport the alert tools and alert teams of the master system in the respective maintenance dialogs manually from the master system into the backup system using the “Transport entries” pushbutton. If you want to test the alert first on the backup system, start transaction J5H1_ALA.

		
10.		Start Transaction J5H1_BUS and enter the alert settings you want.  If you do not want any alerts, leave the fields empty.
11.	After the initial comparison, the master system writes all subsequent changes to the backup file, which grows as a result. To prevent this, plan report /BTCMAN/M_BK1 periodically. 	

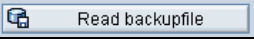
If the backup in this mode is to be limited to master data and repeating orders only, also activate in point 2 and point 6 the “Only master data and WDH orders” checkbox.

10. Scenario: Switchover

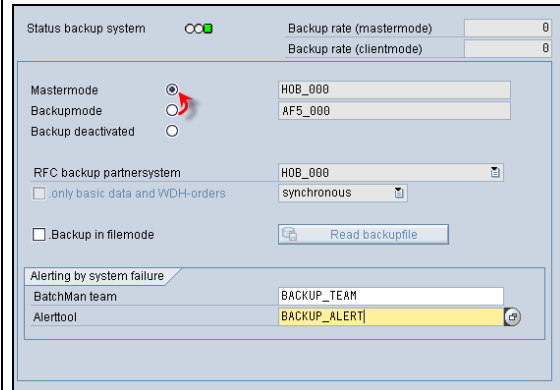
Procedure

Pay attention to the numbering

	Master system (e.g. HOB_000)	Backup system (e.g. AF5_000)
1.	Start Transaction J5HIN and stop BatchMan using this pushbutton  .	
2.		Start Transaction J5H1_BUS.

If the backup is running in the file mode, import the current backup file using this pushbutton . The name of the backup file is visible in the master system in Transaction J5H1_BUS. Then deactivate the “Backup in file mode” checkbox.

Switch from the backup mode to the master mode.



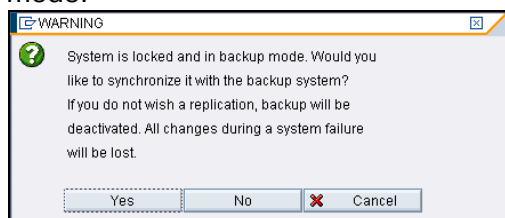
and then choose “Save”. 

Switchover active, backup system takes over the master role.

3. End the switchover

Start Transaction J5HIN and start BatchMan using this push button .

In the subsequent dialog box, click on “Yes” and the system imports the data changes that the backup system made during the master mode.

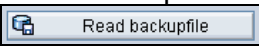
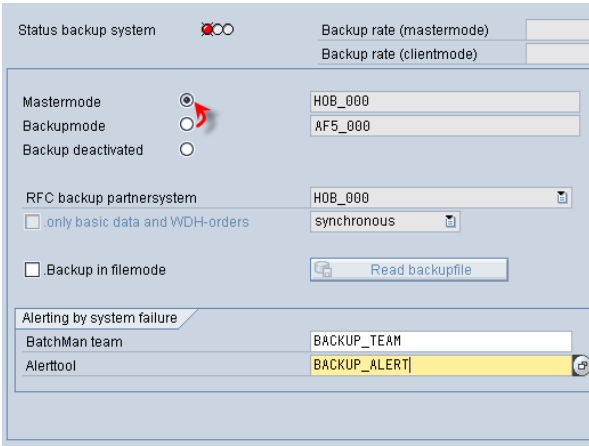


Then the master system automatically assumes the master role, and the backup system is automatically reset back to the backup role.

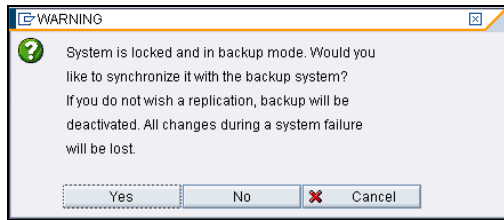
11. Scenario: Failover

Procedure

Pay attention to the numbering

	Master system (e.g. HOB_000)	Backup system (e.g. AF5_000)
1.	System fails...	You receive an alert according to the alert settings.
2.		Start Transaction J5H1_BUS. If the backup is running in the file mode, import the current backup file using this pushbutton . The current backup file is the file with the most recent date in the file name (BM_BACKUP_JJJJMMTT.dat). For several backup files having the same date, then the current backup file is the file with the most recent date + greatest sequential number (BM_BACKUP_JJJJMMTT_X.dat). Then deactivate the "Backup in file mode" checkbox. Switch from the backup mode to the master mode.  and then choose "Save".  Failover active, backup system takes over the master role.
3.	End the failover Start Transaction J5HIN and start BatchMan using this push button .	

In the subsequent dialog box, click on “Yes” and the system imports the data changes that the backup system made during the master mode.



Then the master system automatically assumes the master role, and the backup system is automatically reset back to the backup role.

Bear in mind: If the backup runs in the file mode, you will require a new initial comparison (report: /BTCMAN/M_BK1)